

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Christopher J. Bulian et al. Docket No.: S-100,500

Serial No.: Examiner:

Filed : Art Unit:

For : PREPARATION OF TUNGSTEN OXIDE

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR 1.56, 1.97, AND 1.98

Sir:

The documents listed below, copies attached, are submitted in compliance with the duty of disclosure defined in 37 CFR 1.56.

1. John A. Bailey et al., "Process For Producing Tungsten Oxide," U. S. Patent 5,911,965, issued June 15, 1999.

CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8(a))

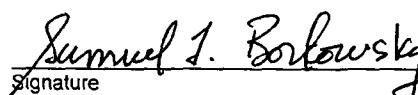
I hereby certify that this correspondence is, on the date shown below, being:

MAILING

deposited with the United States Postal Service with sufficient postage as first class mail in a envelope addressed to the:
Commissioner for Patents, P. O. Box 1450,
Alexandria, VA 22313-1450.

FACSIMILE

transmitted by facsimile to the
United States Patent and Trademark Office.


Signature

Date July 28, 2003

Samuel L. Borkowsky
(type or print name of person certifying)

2. J. P. Cronin, D. J. Tarico, J. C. L. Tonazzi, A. Agrawal, and S. R. Kennedy, "Microstructure and Properties of Sol-Gel Deposited WO_3 Coatings for Large Area Electrochromic Windows," *Solar Energy Materials and Solar Cells*, vol. 29, pp. 371-386, 1993.
3. M. A. Reiche, P. Hug, and A. Baiker, "Effect of Grafting Sequence on the Behavior of Titania-Supported V_2O_5 — WO_3 Catalysts in the Selective Reduction of NO by NH_3 ," *Journal of Catalysis*, vol. 192, pp. 400-411, 2000.
4. Massayoshi Kaneyasu et al., "Gas Detecting Apparatus," U. S. Patent 4,586,143, issued April 29, 1986.
5. David Edward Williams et al., "Resistive Gas Sensing, Especially For Detection of Ozone," U. S. Patent 5,811,662, issued September 22, 1998.
6. Xusheng Wang, Norio Miura, and Noboru Yamazoe, "Study of WO_3 -Based Sensing Materials for NH_3 , and NO Detection," *Sensors and Actuators B*, vol. 66, pp. 74-76, 2000.
7. I. Ruokamo, T. Karkkainen, J. Huusko, T. Ruokanen, M. Blomberg, H. Torvela, and V. Lantto, "H₂S Response of WO_3 Thin-Film Sensors Manufactured By Silicon Processing Technology," *Sensors and Actuators B*, vol. 18-19, pp. 486-488, 1994.
8. Marshall Leibowitz et al., "Method for Making Electrochromic Films Having Improved Etch Resistance," U. S. Patent 4,233,339, issued November 11, 1980.
9. Ismael Jimenez, Jordi Arbiol, Albert Cornet, and Joan Ramon Morante, "Structural and Gas-Sensing Properties of WO_3 Nanocrystalline Powders Obtained by a Sol-Gel Method From Tungstic Acid," *IEEE Sensors Journal*, vol. 2, no. 4, pp. 329-335, August 2002.
10. Shahid Pirzada et al., "Method of Producing Nanoscale Powders By Quenching of Vapors," U. S. Patent 5,788,738, issued August 4, 1998.
11. M. Regragui, M. Addou, A. Outzourkit, J. C. Bernede, Elb. El Idrissi, E. Benseddik, and A. Kachouane, "Preparation and Characterization of Pyrolytic Spray Deposited Electrochromic Tungsten Trioxide Films," *Thin Solid Films*, vol. 358, pp. 40-45, 2000.

12. John P. Cronin et al., "Precursor Solutions for Forming Coatings," U. S. Patent 5,525,264, issued June 11, 1996.
13. Clint Bickmore et al., "Combustion of Emulsions: A Method and Process for Producing Fine Powders," U. S. Patent 5,984,997, issued November 16, 1999.
14. Morito Akiyama, Jun Tamaki, Norio Miura, and Noboru Yamazoe, "Tungsten Oxide-Based Semiconductor Sensor Highly Sensitive to NO and NO₂," Chemistry Letters, pp. 1611-1614, 1991.
15. M. Gotic, M. Ivanda, S. Popovic, and S. Music, "Synthesis of Tungsten Trioxide Hydrates and Their Structural Properties," Materials Science and Engineering, vol. B77, pp. 193-201, 2000.
16. Cs. Balazsi, M. Farkas-Jahnke, I. Kotsis, L. Petras, and J. Pfeifer, "the Observation of Cubic Tungsten Trioxide at High-Temperature Dehydration of Tungstic Acid Hydrate," Solid State Ionics, vol. 141-142, pp. 411-416.
17. Cs. Balazsi, "Development of Tungsten Oxide Hydrate Phases During Precipitation-Washing-Ripening Process," Materials Structure, vol. 6, num. 6, pp. 135-139, 1999.

This Information Disclosure Statement is not to be construed as a representation that a search has been made or that additional matter material to the examination of this application does not exist. Applicant does not believe that any of these citations constitutes prior art under 35 U.S.C. 102.

It is requested that the above citations be made of record in the prosecution of this application.

Respectfully submitted,

Date: July 28, 2003
Reg. No. 42,346
Phone (505) 665-3111

Samuel L. Borkowsky
Signature of Agent
Samuel L. Borkowsky
Los Alamos National Laboratory
LC/IP, MS A187
Los Alamos, New Mexico 87545

Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.	Serial No.
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		S-100,500	
37 CFR 1.98(b)		Applicant(s)	
Christopher J. Bulian et al.		Filing Date	Group

U.S. PATENTS DOCUMENTS

EXAMINER INITIAL	PATENT NUMBER							ISSUE DATE	PATENTEE	CLASS	SUB CLASS	FILING DATE
	5	9	1	1	9	6	5	06/15/1999	John A. Bailey et al.	423	606	01/23/1998
	4	5	8	6	1	4	3	04/29/1986	Masayoshi Kaneyasu et al.	364	509	01/28/1983
	5	8	1	1	6	6	2	09/22/1998	David Edward Williams et al.	73	31.06	06/20/1995
	4	2	3	3	3	3	9	11/11/1980	Marshall Leibowitz et al.	427	108	10/23/1978
	5	7	8	8	7	3	8	08/04/1998	Shahid Pirzada et al.	75	331	09/03/1996
	5	5	2	5	2	6	4	06/11/1996	John P. Cronin et al.	252	583	06/02/1995
	5	9	8	4	9	9	7	11/16/1999	Clint Bickmore et al.	75	343	03/23/1998

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	PATENT NUMBER							ISSUE DATE	COUNTRY	CLASS	SUB CLASS	Translation YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication)

	J. P. Cronin, D. J. Tarico, J. C. L. Tonazzi, A. Agrawal, and S. R. Kennedy, "Microstructure and Properties of Sol-Gel Deposited WO ₃ Coatings for Large Area Electrochromic Windows," Solar Energy Materials and Solar Cells, vol. 29, pp. 371-386, 1993
	M. A. Reiche, P. Hug, and A. Baiker, "Effect of Grafting Sequence on the Behavior of Titania-Supported V ₂ O ₅ —WO ₃ Catalysts in the Selective Reduction of NO by NH ₃ ," Journal of Catalysis, vol. 192, pp. 400-411, 2000
	Xusheng Wang, Norio Miura, and Noboru Yamazoe, "Study of WO ₃ -Based Sensing Materials for NH ₃ , and NO Detection," Sensors and Actuators B, vol. 66, pp. 74-76, 2000

EXAMINER: /Paul Wartalowicz/	DATE CONSIDERED: 07/21/2009
---------------------------------	--------------------------------

*EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. S-100,500	Serial No.
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Applicant(s) Christopher J. Bulian et al.	
		Filing Date	Group
37 CFR 1.98(b)			

OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication)

	I. Ruokamo, T. Karkkainen, J. Huusko, T. Ruokanen, M. Blomberg, H. Torvela, and V. Lantto, "H ₂ S Response of WO ₃ Thin-Film Sensors Manufactured By Silicon Processing Technology," Sensors and Actuators B, vol. 18-19, pp. 486-488, 1994
	Ismael Jimenez, Jordi Arbiol, Albert Cornet, and Joan Ramon Morante, "Structural and Gas-Sensing Properties of WO ₃ Nanocrystalline Powders Obtained by a Sol-Gel Method From Tungstic Acid," IEEE Sensors Journal, vol. 2, no. 4, pp. 329-335, August 2002
	M. Regragui, M. Addou, A. Outzourkit, J. C. Bernede, Elb. El Idrissi, E. Benseddik, and A. Kachouane, "Preparation and Characterization of Pyrolytic Spray Deposited Electrochromic Tungsten Trioxide Films," Thin Solid Films, vol. 358, pp. 40-45, 2000
	Morito Akiyama, Jun Tamaki, Norio Miura, and Noboru Yamazoe, "Tungsten Oxide-Based Semiconductor Sensor Highly Sensitive to NO and NO ₂ ," Chemistry Letters, pp. 1611-1614, 1991
	M. Gotic, M. Ivanda, S. Popovic, and S. Music, "Synthesis of Tungsten Trioxide Hydrates and Their Structural Properties," Materials Science and Engineering, vol. B77, pp. 193-201, 2000
	Cs. Balazsi, M. Farkas-Jahnke, I. Kotsis, L. Petras, and J. Pfeifer, "The Observation of Cubic Tungsten Trioxide at High-Temperature Dehydration of Tungstic Acid Hydrate," Solid State Ionics, vol. 141-142, pp. 411-416 date unknown /P.W./
	Cs. Balazsi, "Development of Tungsten Oxide Hydrate Phases During Precipitation-Washing-Ripening Process," Materials Structure, vol. 6, num. 6, pp. 135-139, 1999
EXAMINER:	/Paul Wartalowicz/
	DATE CONSIDERED: 07/21/2009

*EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.